Exploring Environmental and Cultural Influences on Subsistence: A Comparison of Faunal Assemblages from Two Fort Ancient Villages

Honors Research Thesis

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by

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Abstract

A key issue in Anthropology is the interplay between the environment and culture as they affect human behavior. An effective way to judge the relative extent of these influences is to examine the subsistence strategies employed at two sites that are part of the same culture but which are located in different ecological zones. This project focuses on two Fort Ancient villages known as Guard and Taylor. The Fort Ancient Culture is a pre-Columbian (ca. A.D. 1000-1650) way of life that included established homes, developed agriculture, stored food, and intertribal trade with sites located throughout the Ohio Valley. These two villages are similar in many regards: they were both occupied at the same time, they are similar in size and settlement layout, and they were both agricultural villages that focused on maize cultivation. However, the main difference between them is the environmental zones in which they are located. In this project, the faunal remains from these two sites were examined to determine if they were pursuing similar subsistence strategies when it comes to eating animals. First, the Number of Identified Specimens was calculated by sorting the bones into the major classes of animals and then counting the number of bones in each class. Then, each bone was identified to the specific element, genus and species in order to calculate the Minimum Number of Individuals present. The data from the two sites were then compared to see if they were eating similar amounts of the same kinds of animals. It was hypothesized that, because these sites are located in ecologically distinct zones, their subsistence strategies would be accordingly distinct. However, the data show that their diets were very similar. Possible explanations for these results will be offered, including cultural influences that could have led each site to pursue their strategy.

I. Introduction

Background and Significance

A key issue in Anthropology is the interplay between the environment and culture as they affect human behavior (Mintz and DuBois 2002:100). An effective way to judge the relative extent of this relationship is to examine the subsistence strategies employed at two archaeological sites that are a part of the same culture but which are located in different environmental contexts. According to Cleland (1966:37), within the limits of an environmental setting and a given technological level, the people of a society are faced with a range of choices in the selection of animal species. Given a set of specific species that are available, a culture will determine which species will be hunted, in what season, what techniques are used, and who will employ those techniques. However, many scholars have noted that optimization of efficiency and calorie-intake is not always the driving force in shaping a culture's strategy, as these processes are not only technological but social, political, and philosophical as well (Branch 2005:9). For instance, religious tradition and social structure can strongly influence subsistence choices, as does an animal's usefulness in ways other than as food, such as its basis in material culture. In return, food can bind people to their faiths when it is associated with supernatural beings or processes, it can reinforce religious or ethnic boundaries, and it can influence a culture's political-economic value creation, symbolic value creation, and their social construction of memory (Mintz and DuBois 2002:100). Furthermore, it is thought that specifically those who produce their own food, such as the peoples examined in this study, are influenced by cultural factors first and foremost because they can choose their supplemental food without having to rely solely on it (Cleland 1966:43). Thus, it is clear that bones found at archaeological sites represent a series of environmentally and culturally determined choices (Cleland 1966:38).

In order to examine the applicability of these ideas, this study focused on two Fort Ancient villages known as Guard and Taylor. These two villages are similar in many cultural regards as they are widely accepted to be a part of an overarching cultural tradition known as Fort Ancient. They were also occupied at similar times, conservatively estimated between A.D. 1000 and 1400 (Cook and Burks 2011). However, the main difference between these sites is the environmental zones in which they are located. I hypothesized that, because these sites are located in distinct environmental zones, their subsistence strategies would be accordingly distinct. From this, there stemmed three main research questions that guided this study: 1) In what ways, if any, are the faunal assemblages similar or different between these two sites? 2) To what extent can these similarities and differences be explained by what would have been available in their environments? 3) If this does not adequately explain the assemblages, then to what extent can the cultural environment provide insight into why their particular strategy was used?

This research is significant to the study of subsistence and the Fort Ancient peoples. Although many studies have been conducted on the Fort Ancient culture's neighbors, the Mississippians, the same cannot be said for Fort Ancient. Relatively few studies have been completed that focus on Fort Ancient subsistence, with none specifically evaluating the contradicting influences of environment and culture. Also, many archaeologists note that culturally determined food preferences, and the degree of departure from them, provide important clues for interpreting sites and how they fit into the larger landscape of cultures in an area (Scott 1996:357). Overall, the conclusions drawn from this research are also significant to the fast-growing subfield known as the Anthropology of Food, as they explore the role that environments and culture play in shaping food choice (Mintz and DuBois 2002).

Fort Ancient

As noted above, the two sites examined in this study are similar as they are both a part of the Fort Ancient culture. The Fort Ancient culture is a pre-Columbian (ca. A.D. 1000-1650) way of life that included established homes, developed agriculture, stored food, and intertribal trade with sites located throughout the Ohio Valley (Cook 2008; Drooker 1997; Griffin 1966; Henderson 1992). Fort Ancient sites are located in Indiana, Kentucky, Ohio, and West Virginia, with almost all of the sites located within the Ohio drainage basin and on good-size navigable streams within 100 miles of the Ohio River (Figure 1). The Fort Ancient people were horticulturalists who focused on the cultivation of maize, beans, chenopodium, sunflowers, tobacco, and squash (Drooker 1997:71). This was supplemented by hunting and gathering wild plant resources. In terms of hunting, Fort Ancient has been described as "focal", as their strategy was directed at the procurement of one or a few similar kinds of foods, namely deer, but also elk, bear and turkey (Cleland 1966:43; Drooker 1997:71). Other common Fort Ancient characteristics include villages that are circular in shape with central plazas, large storage pits, and burials within villages (Drooker 1997:47).

The two sites examined in this study in particular are both relatively early (ca. A.D. 1000-1400). They are similar in size and settlement layout, with both being organized around a circular plaza (Cook and Burks 2011). And, finally, they were both agricultural villages that focused on maize cultivation. These similarities place the sites in a common cultural context which could have shaped the subsistence strategies they pursued.

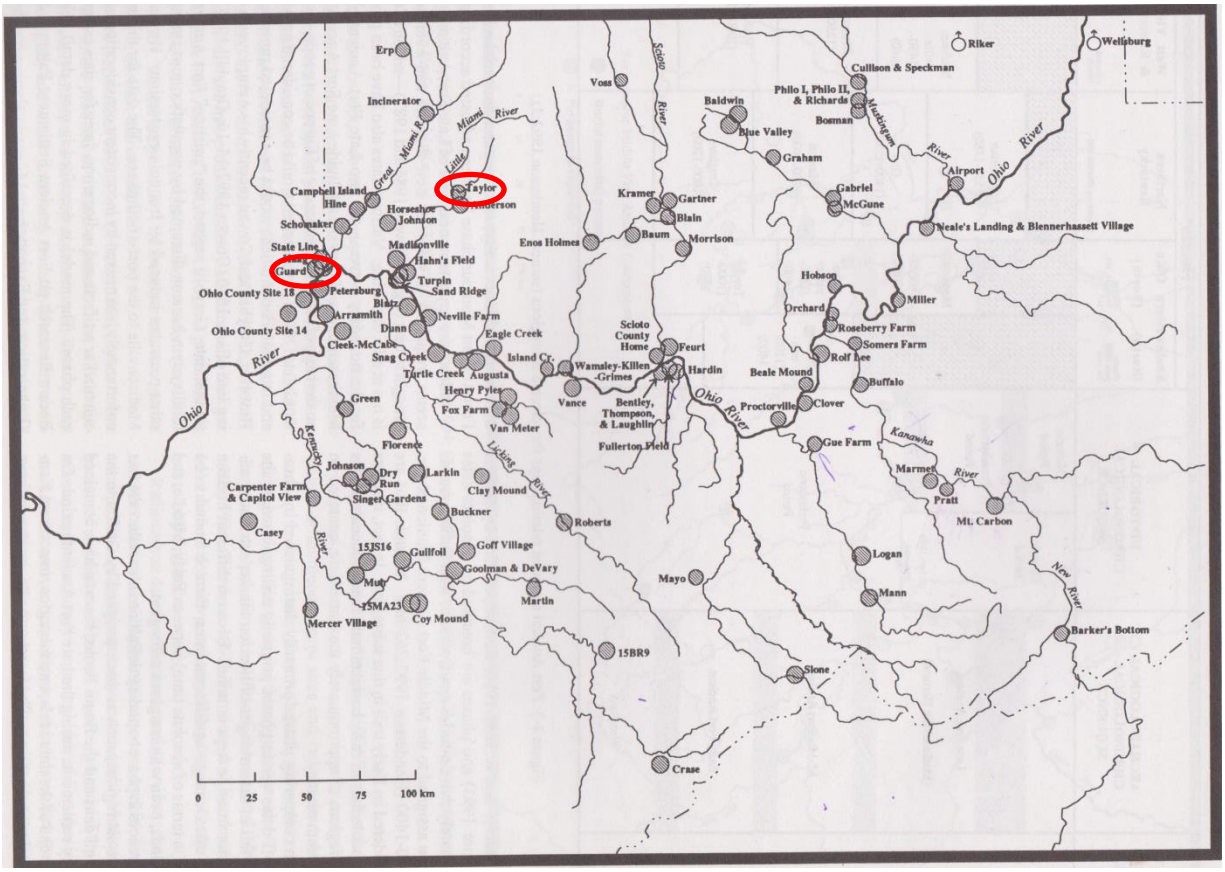

Figure 1: A map showing the location of Taylor, Guard, and other Fort Ancient sites (Drooker 1997:67).

Environment

Despite cultural similarities, these two sites are located in different environmental zones which, as hypothesized, could have led them to pursue different animals. In order to reconstruct an ancient environment and relate a culture to it, it is necessary to refer to the specific resources available in the culture's particular setting and to the relevant physical features such as terrain, precipitation, vegetation and temperature. This is important to do because cultural responses are made to the natural environment in reference to these resources and conditions (Cleland 1966:13). Overall, it is widely accepted that there was no significant change in flora or fauna from the interval examined here (AD 1000-1400) to the time of historic records (Griffin 1966:9).

However, the environment was slightly warmer and wetter, resulting in a lusher environment than is present today (Cook and Martin 2013:10). Thus, we can reasonably assume that the data we have on this area today is more or less comparable to the environment in which these two sites flourished between 600 and 1000 years ago.

The Central Ohio Valley, where these two sites are located, lies within a temperate deciduous zone, which also covers most of the area east of the Mississippi River and south of the Great Lakes. This region was formerly covered by almost unbroken hardwood forests with prairie openings. The hardwood forests included mixes of oak, maple, hickory, walnut, beech, chestnut, ash, and elm trees (Griffin 1966:9). Specifically, both sites are located in the beech-maple Western Mesophytic Forest, which is characterized by beech-maple, oak-hickory, and Mixed Mesophytic (beech-maple-oak-hickory) associations. Mesophytic forests are among the most diverse habitats in the United States and would have provided a variety of resources to support prehistoric populations in the region (Braun 1950). The area has a temperate continental climate, with significant differences between summer and winter temperatures, as well as significant day to day fluctuations. There is an average of 150-180 frost free days per year. Precipitation levels range from 90 centimeters to 115 centimeters a year and are heaviest during late spring and summer. On top of this, flooding often occurs between December and April (Church 1987; Graybill 1981; Wagner 1987; see Drooker 1997:71).

In terms of topography, the Fort Ancient territory encompasses three physiographic regions: the Allegheny plateau, which is unglaciated and contains many deciduous forests; the interior low plateau, which has rolling topography underlain with limestones; and the central lowlands, a flat terrain with beech-maple forests that covers most of Western Ohio. Within this context, the rivers and floodplains provide the most fertile agricultural soil, and thus were the

chosen location for these horticultural sites. In addition, the varied hydrology, topography and plant cover of this area supported a broad range of wildlife including fish, shellfish, turtles near rivers, pigeons, wild turkey, waterfowl, small mammals such as squirrels, raccoons, and woodchucks, and large mammals like elk, deer, bear, bobcat, and sometimes bison (after A.D. 1450) (Church 1987; Graybill 1981; Wagner 1987; see Drooker 1997:71). In the Ohio Valley at this time, wild turkeys were especially common, particularly in forests, thick grass areas, and open prairies as are present at these two sites. Deer were also very abundant (Schorger 1966:221).

Within this broader environment, the specific environs of the two sites in this study differ in important ways. Taylor is located on a wooded bluff on the east bank of the Little Miami River in southwest Ohio, a short distance south of the mouth of Caesar's Creek which flows into the Little Miami about two miles north of Oregonia (Figure 2) (Griffin 1966:92; Essenpreis 1982:220). The soils around Taylor are dominated by various types of well-drained sandy loam and silt loam, which provide prime farmland to the area (USDA 2013). Tree species common to the area include red oak, white oak, black oak, yellow-poplar, white pine, black walnut, sugar maple and white ash (USDA 1973:16). The site is surrounded by steep slopes to the east, west, and north, and lies 110ft above the Little Miami (Essenpreis 1982:220). The total elevation of the site ranges from about 400ft to 1500ft, and when a 1.25km by 1.25km square around Taylor is examined, only 1% of the area is composed of water (USDA 2013). Thus, Taylor is dominated by a forest environment. Animals common to deciduous forest environments and deciduous forest edge environments, such as the ones present at Taylor, are bear, raccoon, bobcat, woodchuck, gray squirrel, southern flying squirrel, striped skunk, gray wolf, turkey, deer, elk,

chipmunk, opossum, least weasel, fox squirrel, coyote, harvest mice, gray fox, eastern spotted skunk, and eastern box turtle (Cleland 1966:245).

Figure 2: The Taylor Site (33Wa10) (Google Earth 2013).

On the other hand, Guard lies on a floodplain of the Great Miami River in Dearborn County, near Lawrenceburg in southeastern Indiana (Figure 3). It is located on an active agricultural field near the confluence of the Great Miami River and the Ohio River. It occupies an area where several environmental zones meet, such as forests and wetlands, and is close to the southern bank of an oxbow channel of the Great Miami River, now known as Old Channel Lake. In fact, in a 1.25km by 1.25km square around Guard, 20% of the environment is water (USDA 2013). The soils at Guard are characterized as deep and well-drained Huntington silt loam.

USGS Huntington silt loam is described as silty over loamy alluvium, and it commonly occurs on flood plains and natural levees along the Ohio River (Nickell 1981). The Guard site lies on an almost level surface of 470 ft. above sea level and floods frequently on a seasonal basis, but in general has a high organic content suitable for agriculture (Nickell 1981; White et al. 2005). It is home to many riparian tree species such as red maple, cottonwood, sycamore, black willow, and water willow (White et al. 2005:420). The same deciduous forest and deciduous forest edge animals that were common at Taylor would also have been common at Guard. In addition, animals that frequent aquatic habitats would have also been common. These types of animals include beaver, muskrat, mink, otter, water shrew, snapping turtle, mud turtle, spotted turtle, wood turtle, blanding's turtle, painted turtle, spiny softshell, and smooth softshell (Cleland 1966:246).

Because of these key differences in the Guard and Taylor environs, different faunal assemblages are expected. We would expect the faunal assemblages at Guard and Taylor to be similarly dominated by deer, turkey, and other small mammals, however we also expect Guard to include more fish, turtle, and a greater diversity of species in general than is present at Taylor as Guard is surrounded by more water and environmental variation.

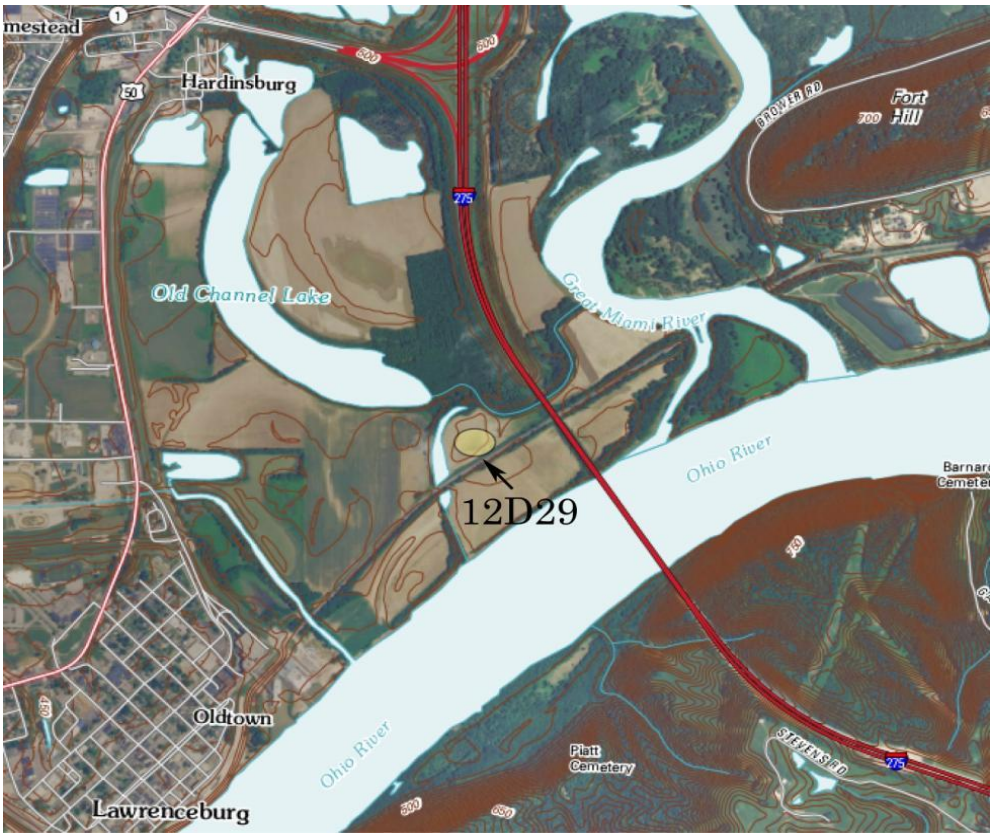

Figure 3: The Guard Site (12D29) (Cook and Martin 2013:9).

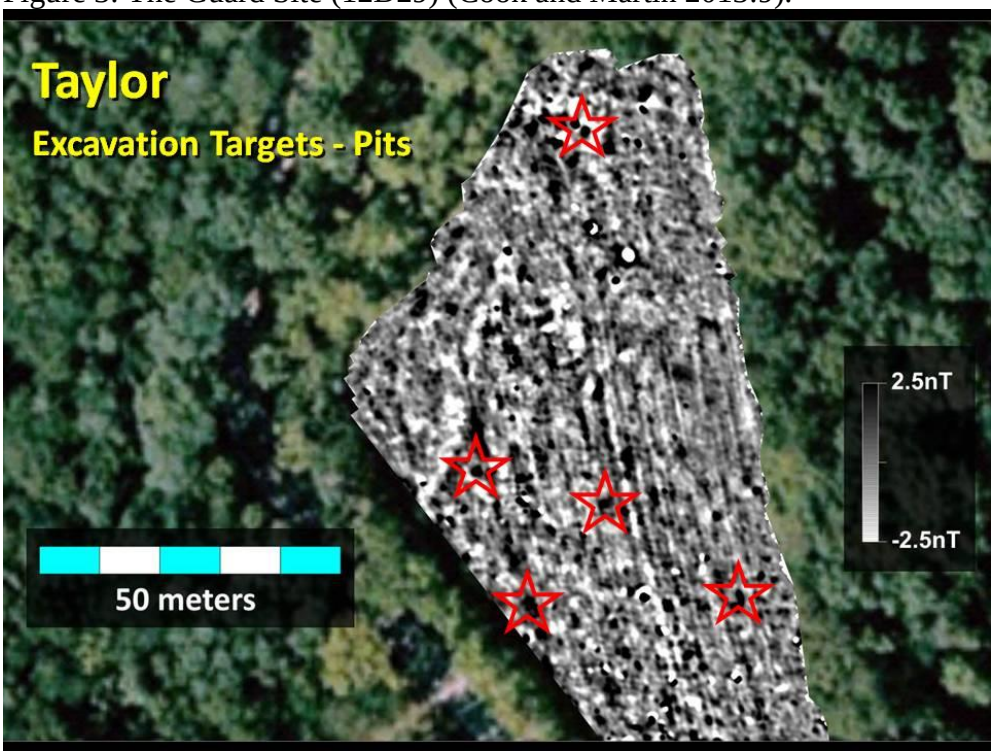

Figure 4: A map of the Taylor Site showing locations of features, overlaid with magnetometry results (Cook and Burks 2011).

II. Methodology

The Taylor site, located on land belonging to Hiram Taylor, was first excavated in 1891 by archaeologist Warren K. Moorehead on behalf of the Columbian Exposition. He uncovered a village, a burial mound, and several village burials in his excavations, yet he provided minimal information on provenience (Griffin 1943:101; Drooker 1997:92). In the summer of 2011, six refuse pits at Taylor were excavated by an Ohio State University (OSU) Archaeology Field School that yielded a large volume of prehistoric debris, including faunal and paleobotanical remains, ceramics, and lithic tools. The faunal material from five pit features in the residential areas and the one pit feature from the plaza area form the basis of the Taylor faunal sample used in this study (Figure 4).

Black (1934) first discovered the Guard site, also named after an early landowner, during his archaeological survey of Dearborn and Ohio counties. Later, limited excavations of the Fort Ancient component of Guard were conducted by Indiana University's Glenn Black Lab, who uncovered eight features and three burials. In addition, the current property owners conducted excavations in the late 1980s and identified 21 human burials, two structures, and several shallow pit features (Sedler 1990). In the summer of 2012, three trenches and several pit features were excavated by OSU that yielded similar prehistoric debris as was found at Taylor. The faunal material from all sub-plowzone contexts comprised the Guard faunal sample (Figure 5).

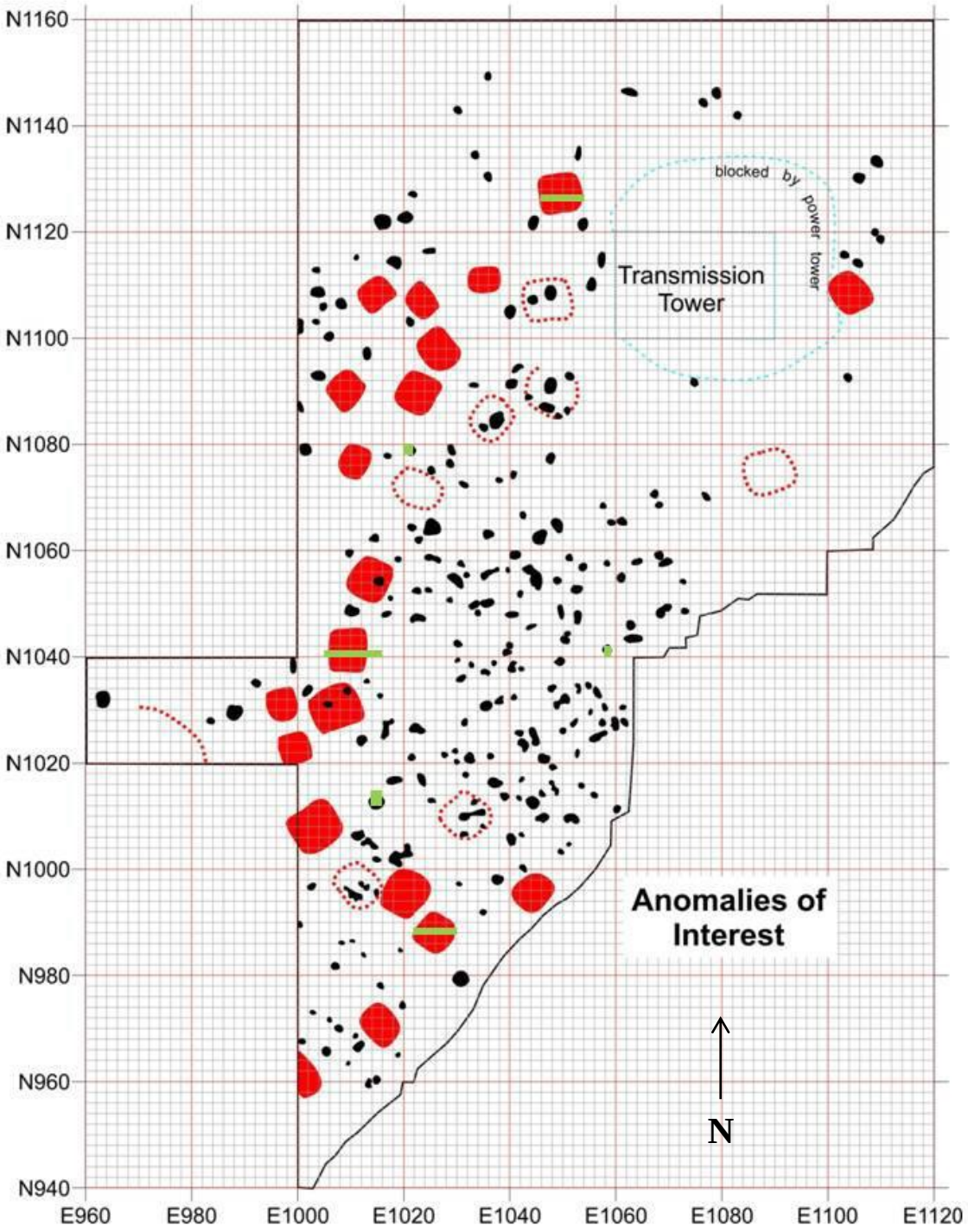

Figure 5: A map of the Guard site with magnetometry results, showing the location of the three excavated trenches and pit features (scale is in meter) (Cook and Martin 2013:8).

The analysis was undertaken following standard steps for faunal analysis (Branch 2005; Cleland 1966). In the lab, the faunal material was sorted into class categories of mammal, bird, reptile, fish, amphibian, and unidentifiable animal (e.g. pieces of bone too small to be identified and assigned to a class). After sorting, necessary contextual information (i.e. feature number, level, bag number) was recorded in an Excel spreadsheet along with the number of identified specimens (NISP) of each skeletal class. Then, when possible, each element was identified and the genus and species was determined using comparative collections from OSU and the Cincinnati Museum Center which included several large and small mammal specimens and several turkey specimens. Several reference materials were used as well to supplement these collections (Gilbert 1980; Smart 2009; France 2009; Adams and Crabtree 2012). Only mammals, turkey, and some turtle were able to be identified to the species level. Most avian, turtle, and all fish and amphibian bones were not identified to the species level due to the lack of comparative specimens in those categories. After identification, the minimum number of individuals (MNI) present was calculated. This was done by examining all of the bones present for each species in each level, and determining what the minimum number of specimens could be given the number of each element that was present compared to the total number of each element that the particular species has, taking into account side (right and left) and the relative age and size of the individual elements. Finally, in order to address the issues of preservation and recovery bias, flotation samples from each site were examined and the faunal remains were sorted in categories of mammal, reptile, fish, bird, amphibian and unidentifiable animal for comparison to the regular site assemblages. This was done to ensure that recovery is not altering the results of the study, but preservation could still be an issue that requires further investigation.

III. Results

The results of the faunal analysis indicate similar patterns of subsistence for each site. The Taylor assemblage consists largely of mammals, followed by fish, reptiles, and birds respectively (Figure 6). Within the mammals category, White-tailed Deer (*Odocoileus virginianus*) dominate, followed by Eastern Gray Squirrel (*Sciurus carolinensis*), Raccoon (*Procyon lotor*), and Groundhog (*Marmota monax*) in significant amounts. This is then followed by various other small and large mammals in very small amounts (<0.1% of the total assemblage) (Figure 8). Within the bird category, Wild Turkeys (*Meleagris gallopavo*) make a significant contribution, although most of the avian bones were unidentifiable to the species level. Turtles dominate the reptile category, although no bones were able to be identified to the species level, nor were any fish bones. No amphibians were present in the assemblage (Table 1). The flotation sample results were very similar, with mammals constituting 64.9% of the remains recovered, followed by fish (31.2%), reptile (2.92%), amphibian (0.73%), and bird (0.14%) (Figure 7).

The Guard assemblage also consists largely of mammals, followed by fish, birds, reptiles, and amphibians respectively (Figure 6). Within the mammal category, White-Tailed Deer, again, dominate, followed by Woodrat (*Neotoma floridana*) and Raccoon in significant amounts. This is, again, followed by various other small and large mammals in amounts < 0.1% of the total assemblage (Figure 9). Within the bird category, Wild Turkey remains are abundant, but the majority of bones were unidentifiable to the species level. The reptile assemblage was comprised mostly of unidentifiable turtles, with some Eastern Box Turtle (*Terrapene carolina carolina*). The fish were unable to be identified, and the amphibians found were an unidentifiable species of frog (Table 2). Again, the flotation sample supports these general conclusions, with mammal

constituting 87.68% of the sample, followed by fish (10.14%), and reptile (2.17%). There were no bird or amphibian remains in the floatation sample (Figure 7).

Overall, both sites are more similar than they are different. In general, both sites are dominated by mammals, deer in particular, and animals which were common to the larger environment of the central Ohio Valley as a whole. However, Guard shows a little more diversity in the species being utilized with 23 species total, while Taylor has 20. This aspect is fitting with the hypothesis as it is clear that those at Guard were utilizing a few more species, probably because there was a greater diversity of species available to them in their unique environment. However, the Taylor occupants appear to be using more fish than the Guard occupants, which is contrary to what was hypothesized. Finally, recovery bias and preservation do not seem to be greatly altering the results of this study, as the flotation samples from both sites echo the results from the main assemblages. The ratios of NISP for each animal class remain largely the same at both sites, with mammal still constituting over half of the sample in both cases. The only notable differences between the flotation samples and the main assemblages are minor, such as fewer bird remains (2.8% versus 0.14% at Taylor, 2.07% versus 0% at Guard), slightly higher numbers of fish bones (7.13% versus 31.2% at Taylor, 2.28% versus 10.14% at Guard), and, specifically at Taylor, the presence of amphibian bones (0% versus 0.73%). Of course, these differences could very likely disappear if all flotation samples were examined. Finally, preservation may still be an issue that requires further investigation, however it is unlikely since mammal bones have been found to degrade faster than fish or bird bones, which means that, if anything, there would be a higher proportion of mammal bones if everything was perfectly preserved (Branch 2005:121).

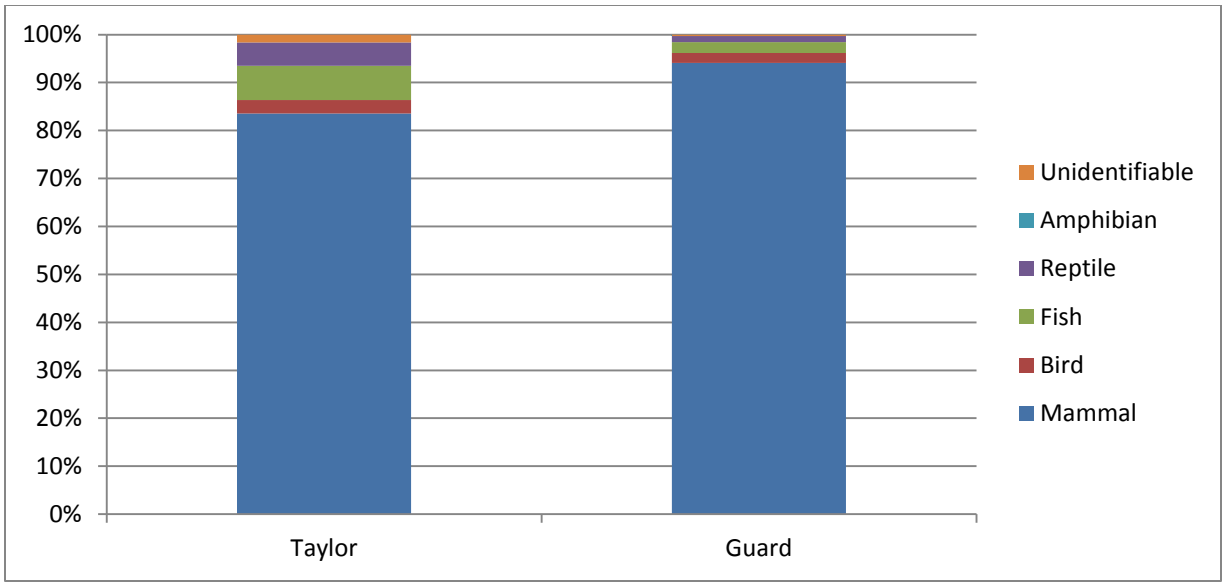

Figure 6: NISP percentage of animal categories from main assemblages at Guard and Taylor.

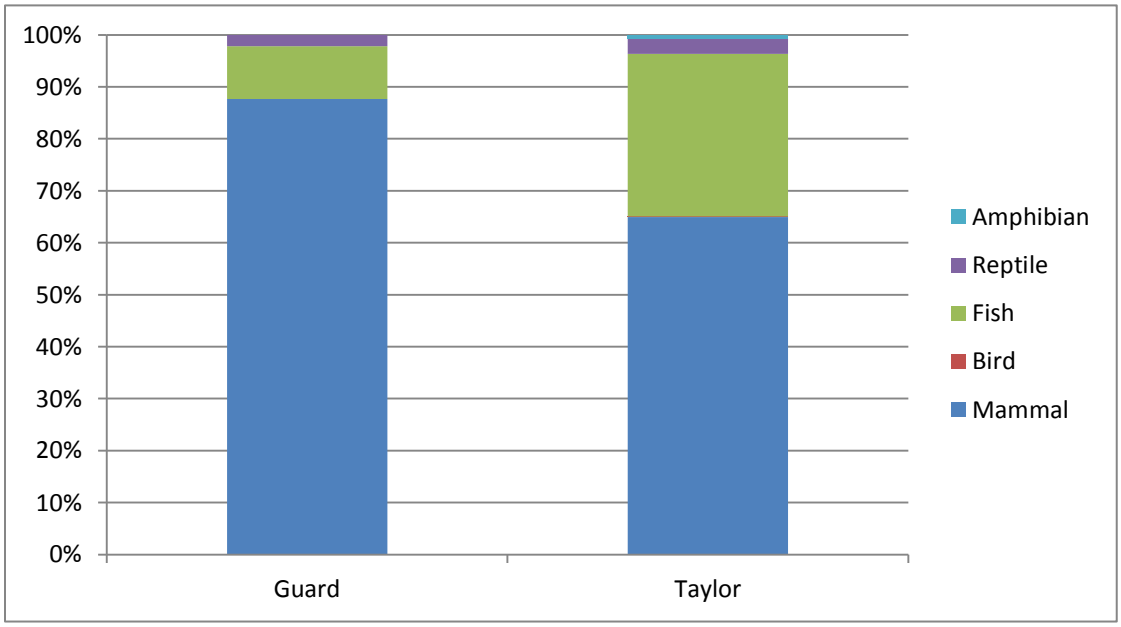

Figure 7: NISP percentage of animal categories from Guard and Taylor flotation samples.

Animal Class	Number of Identified Specimens (NISP)	Percentage	Minimum Number of Individuals (MNI)
Mammal	**16235**	**83.55%**	**-**
Deer (*Odocoileus virginianus*)	1387	7.11%	204
Eastern Gray Squirrel (*Sciurus carolinensis*)	77	0.39%	29
Raccoon (*Procyon lotor*)	61	0.31%	32
Groundhog (*Marmota monax*)	28	0.14%	19
Coyote (*Canis latrans*)	17	0.08%	9
Unidentifiable Mouse/Rat (*Neotoma sp.*)	13	0.06%	10
Elk (*Cervus canadensis*)	8	0.04%	5
Unidentifiable Rabbit (*Lepus sp.*)	6	0.03%	4
American Black Bear (*Ursus americanus*)	6	0.03%	6
Muskrat (*Ondata zibethicus*)	5	0.02%	1
Weasel (*Mustela sp.*)	3	0.01%	3
Fox Squirrel (*Sciurus niger*)	1	<0.01%	1
Opossum (*Didelphis marsupialis*)	1	<0.01%	1
Moose (*Alces alces*)	1	<0.01%	1
Meadow Vole (*Microtus pennsylvanicus)*	1	<0.01%	1
Unidentifiable Canid (*Canis sp.*)	1	<0.01%	1
Unidentifiable Small Mammal	171	0.87%	-
Unidentifiable Medium Mammal	90	0.46%	-
Unidentifiable Mammal	14358	73.90%	-
Birds	**545**	**2.80%**	**-**
Turkey (*Meleagris gallopavo*)	94	0.48%	54
Unidentifiable Avian	451	2.32%	-
Fish	**1385**	**7.13%**	**-**
Unidentifiable Fish	1385	7.12%	-
Reptiles	**954**	**4.90%**	**-**
Unidentifiable Turtle	954	4.90%	-
Amphibians	**0**	**0.00%**	**0**
Unidentifiable Animal	**313**	**1.62%**	**-**
Total	**19432**	**100%**	

Table 1: Taylor (33Wa10) species identified.

Animal Class	Number of Identified Specimens (NISP)	Percentage	Minimum Number of Individuals (MNI)
Mammal	**16641**	**94.09%**	**-**
Deer (*Odocoileus virginianus*)	775	4.38%	158
Woodrat (*Neotoma floridana*)	118	0.66%	54
Raccoon (*Procyon lotor*)	21	0.11%	13
Elk (*Cervus canadensis*)	16	0.09%	5
Coyote (*Canis latrans*)	16	0.09%	9
Dog (*Canis familiaris*)	15	0.08%	10
Eastern Gray Squirrel (*Sciurus carolinensis*)	12	0.06%	10
Unidentifiable Canid (*Canis sp.*)	10	0.05%	7
Fox Squirrel (*Sciurus niger*)	9	0.05%	6
Red Fox (*Vulpes vulpes*)	7	0.03%	4
Opossum (*Didelphis marsupialis*)	6	0.03%	5
Wolf (*Canis lupus*)	5	0.02%	3
Eastern Cottontail (*Sylvilagus floridanus*)	3	0.01%	3
Unidentifiable Rabbit (*Lepus sp.*)	3	0.01%	1
Meadow Vole (*Microtus pennsylvanicus)*	2	0.01%	1
North American Beaver (*Castor canadensis*)	1	<0.01%	1
Gray Fox (*Urocyon cinereoargenteus*)	1	<0.01%	1
Unidentifiable Mouse/Rat (*Neotoma sp.*)	1	<0.01%	1
Unidentifiable Small Mammal	13	0.07%	-
Unidentifiable Medium Mammal	11	0.06%	-
Unidentifiable Mammal	15616	88.29%	-
Birds	**366**	**2.07%**	**-**
Turkey (*Meleagris gallopavo*)	89	0.49%	44
Unidentifiable Avian	277	1.56%	-
Fish	**403**	**2.28%**	**-**
Unidentifiable Fish	403	2.27%	-
Reptiles	**221**	**1.25%**	**-**
Unidentifiable Turtle	219	1.23%	-
Eastern Box Turtle (*Terrapene carolina carolina*)	2	0.01%	1
Amphibians	**3**	**0.01%**	**2**
Unidentifiable Frog	3	0.01%	2
Unidentifiable Animal	**52**	**0.30%**	**-**
Total	**17686**	**100%**	

Table 2: Guard (12D29) species identified.

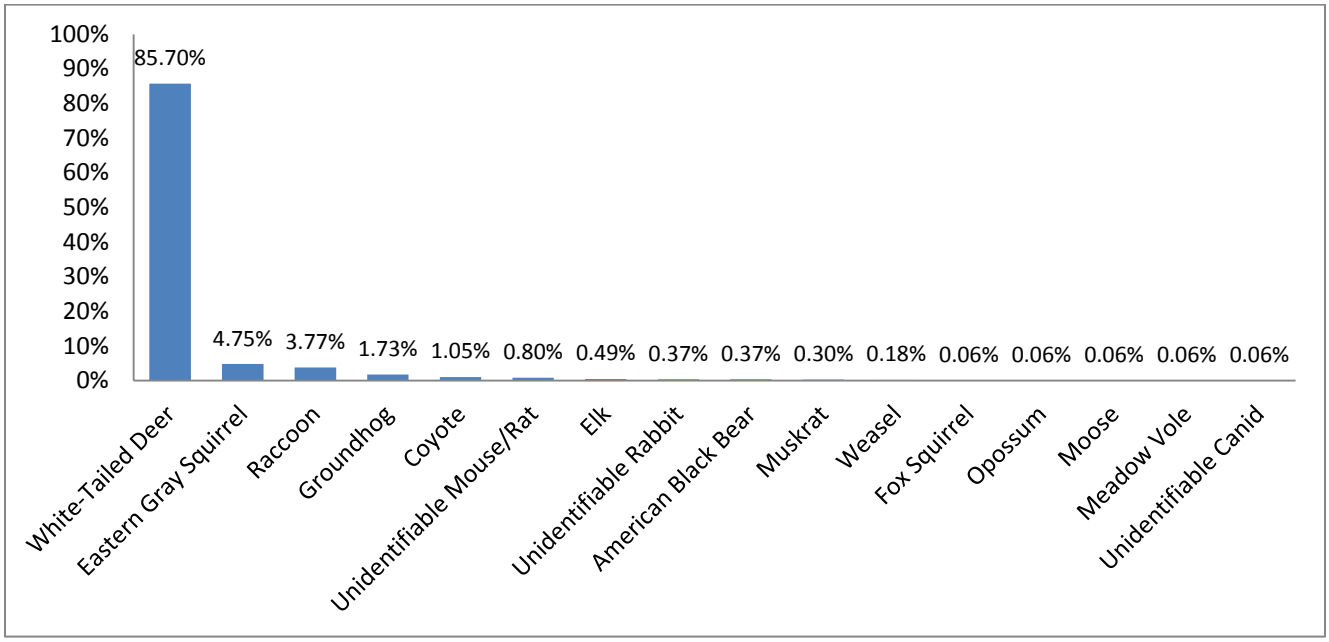

Figure 8: Taylor NISP percentage of mammal species identified.

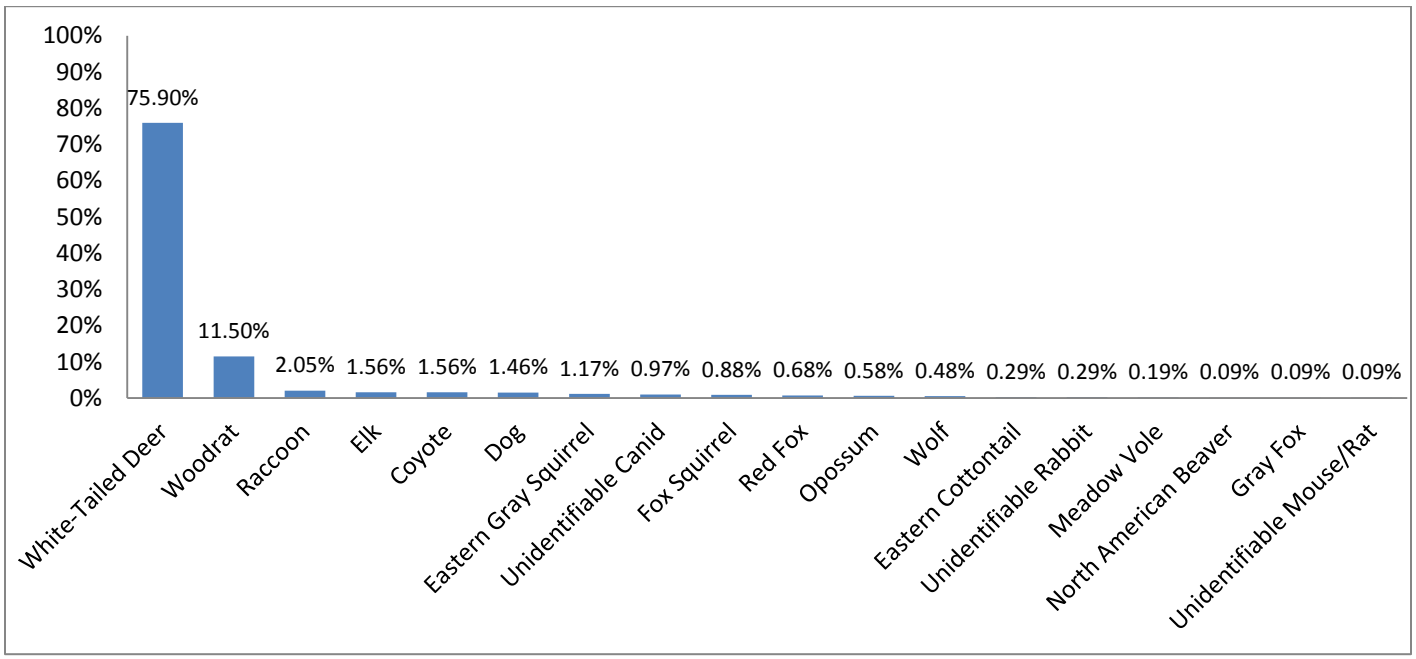

Figure 9: Guard NISP percentage of mammal species identified.

IV. Exploring Broader Cultural Patterns

It is clear from the results that the subsistence strategies pursued at Guard and Taylor cannot be explained simply by consideration of their respective physical environments. Thus, it is critical to examine their cultural context as well. First, by examining the subsistence trends for a selection of other sites in the Fort Ancient world, the pattern of Guard and Taylor is assessed. Second, by examination of the surrounding Native American tribes of the Northeast and Southeast, insights are gained into why they pursued the strategies they did.

Faunal Use in the Fort Ancient World

The Fort Ancient villagers were separate polities with interactions on many levels including visiting, intermarriage, and semiformal alliance. There were some commonalities that crosscut the whole region, and there may have been formal diplomatic ties among settlements, but it was never a homogenous area (Drooker 1997:329). In regard to subsistence, Fort Ancient peoples practiced a focal economy, relying on relatively few plant and animal sources for most of their calories, principally corn (Wagner 1996:279). Societies such as these depend on specific methods and techniques for the exploitation of a dietary resource (Cleland 1966:43). Some of the important, frequently used animals in the Fort Ancient diet were white-tailed deer (*Odocoileus virginianus*) and American elk (*Cervus elaphus*) in the northern Fort Ancient range, or deer, elk, and black bear (*Ursus americanus*) in the southern Fort Ancient range. These animals are said to have supplied over 82% of the meat in their diet (Wagner 1996:279). These dietary mainstays were supplemented with meat from smaller animals such as turkey (*Meleagris gallopavo*), raccoons (*Procyon lotor*), squirrels (*Sciurus* sp.), turtles, and fish (Henderson and Breitburg 1992; Howard 1981:2).

Data collected from eight Fort Ancient sites from Ohio, Kentucky, and Indiana show clearly that they pursued very similar subsistence strategies to the occupants at Guard and Taylor. All eight sites showed a dominance of mammal bones (at least over 70% in all cases), followed by birds, and then either reptiles or fish, and finally amphibians (Figure 10), the same ratios present at Guard and Taylor. When only mammals are examined, the eight sites show white-tailed deer to be the most prevalent mammal, followed by various other small mammals that are common in some percent to all the sites as a whole, including Guard and Taylor (Figures 10-17) (Henderson and Breitburg 1992; Barber 1974; Reidhead 1976). These data show that these sites are remarkably similar to Guard and Taylor. In addition, a number of Fort Ancient sites, such as Turpin and Sand Ridge in Ohio, reveal a heavy reliance on deer and low reliance on fish even though they are situated near water sources (Smith 2011:462). This is contrasted with the nearby Mississippian culture which has shown a relatively high reliance on fish (Smith 1974). In a different study comprised of data from 15 Fort Ancient sites, aquatic resources were shown to be used but were also not a major part of their diet (Drooker 1997:71).

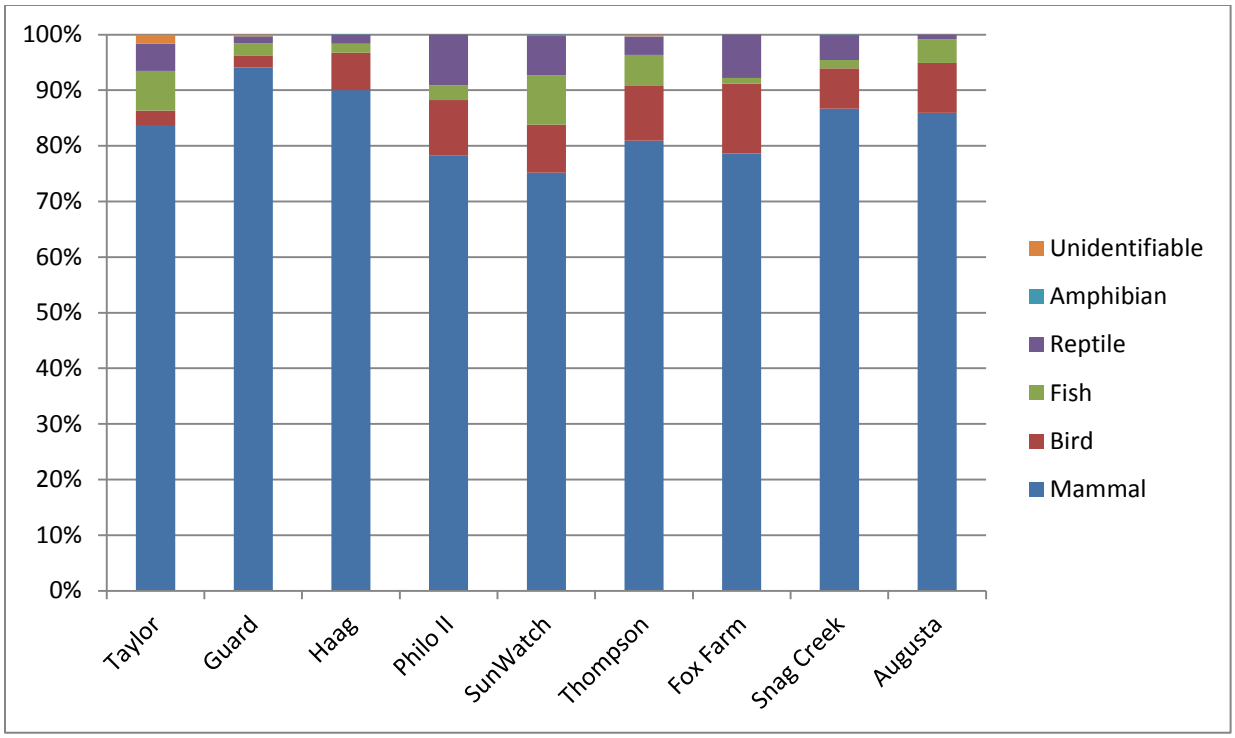

Figure 10: Animal Class percentages from eight Fort Ancient site assemblages compared to Guard and Taylor (Reidhead 1976; Barber 1974;Henderson and Breitburg 1992).

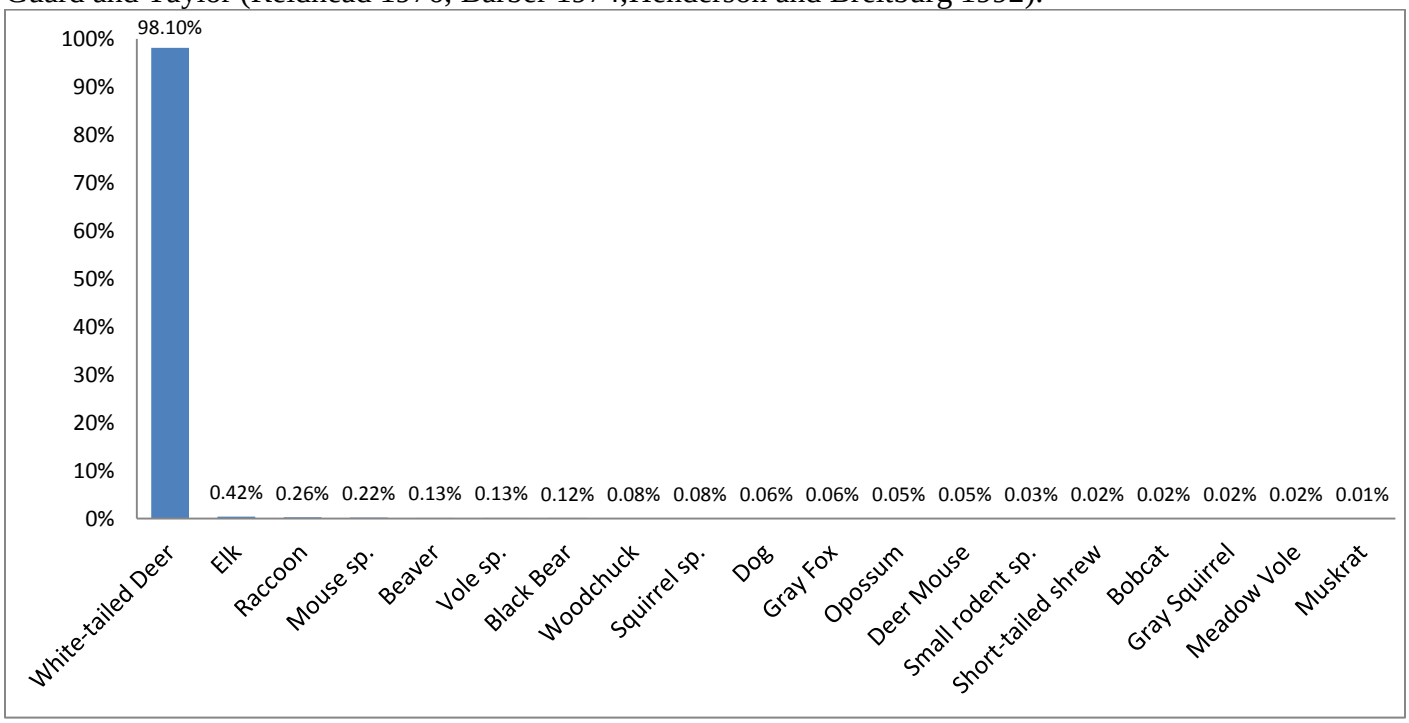

Figure 11: Haag NISP percentage of mammal species identified (Reidhead 1976).

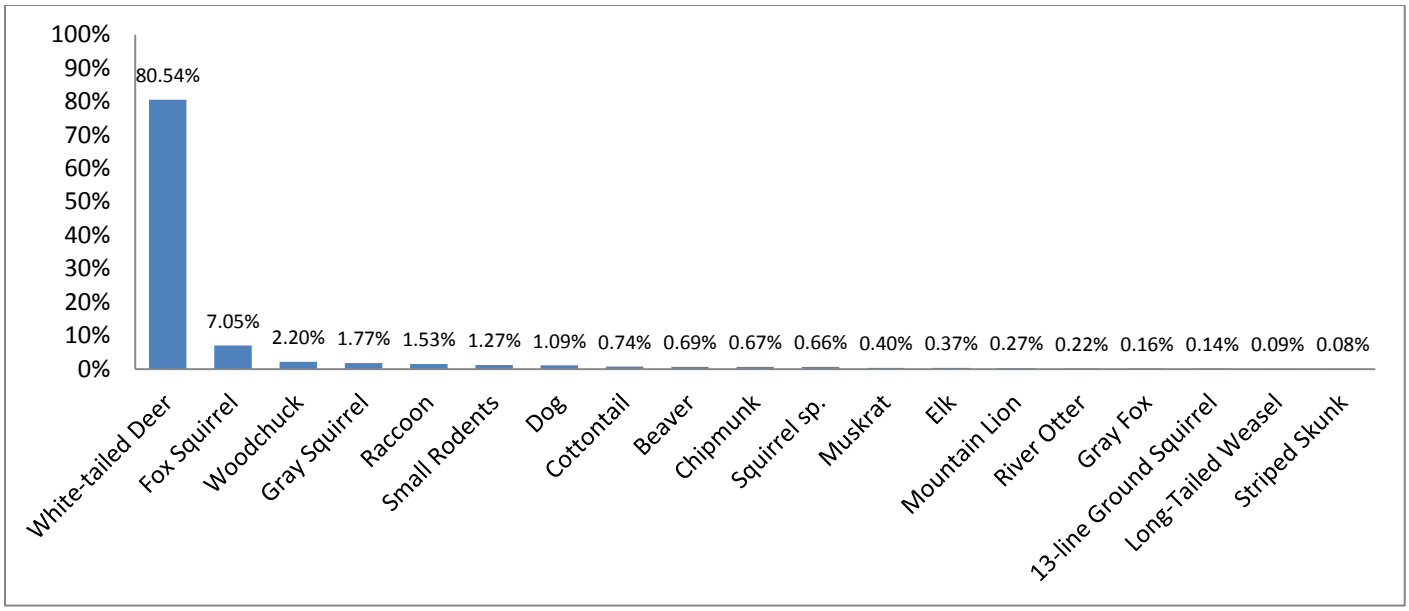

Figure 12: SunWatch NISP percentage of mammal species identified (Barber 1974).

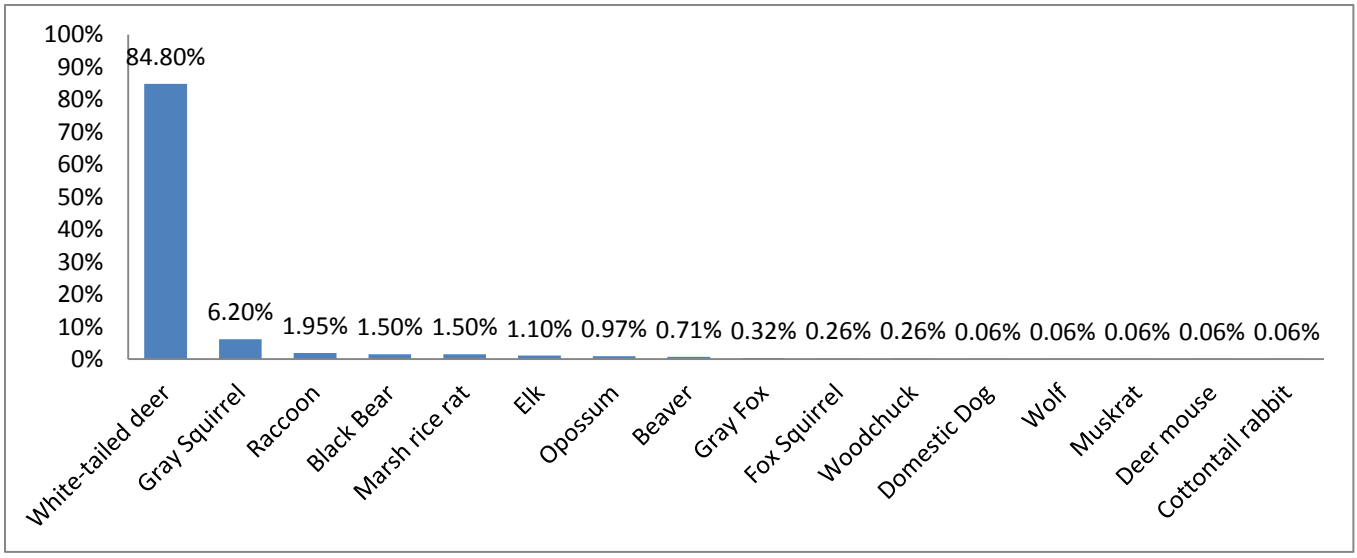

Figure 13: Thompson NISP percentage of mammal species identified (Henderson and Breitburg 1992).

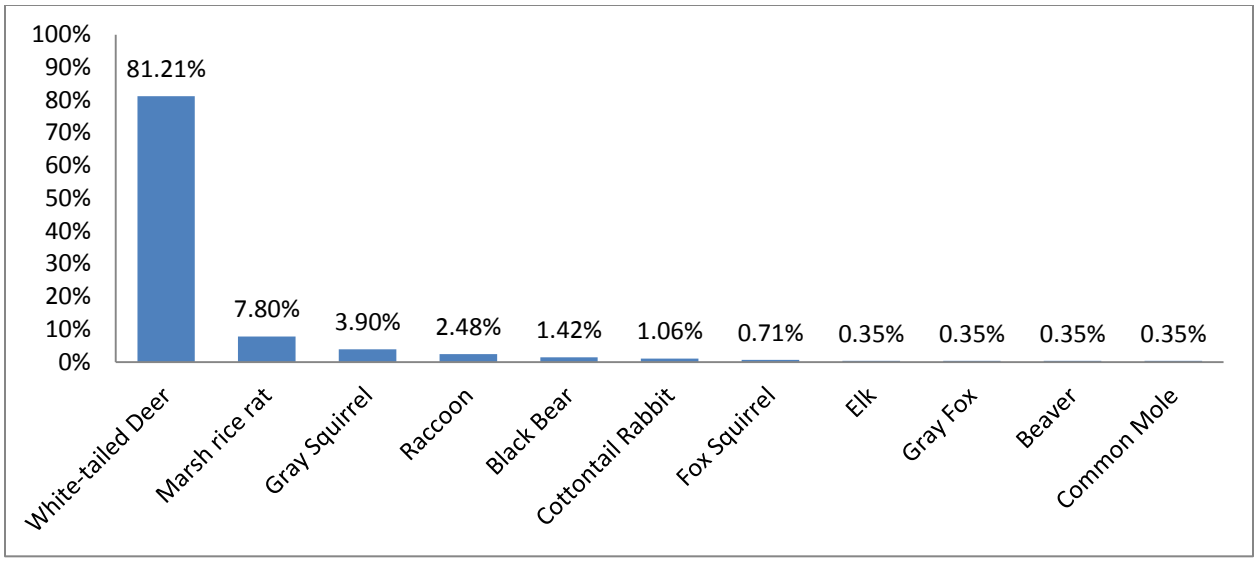

Figure 14: Augusta NISP percentage of mammal species identified (Henderson and Breitburg 1992).

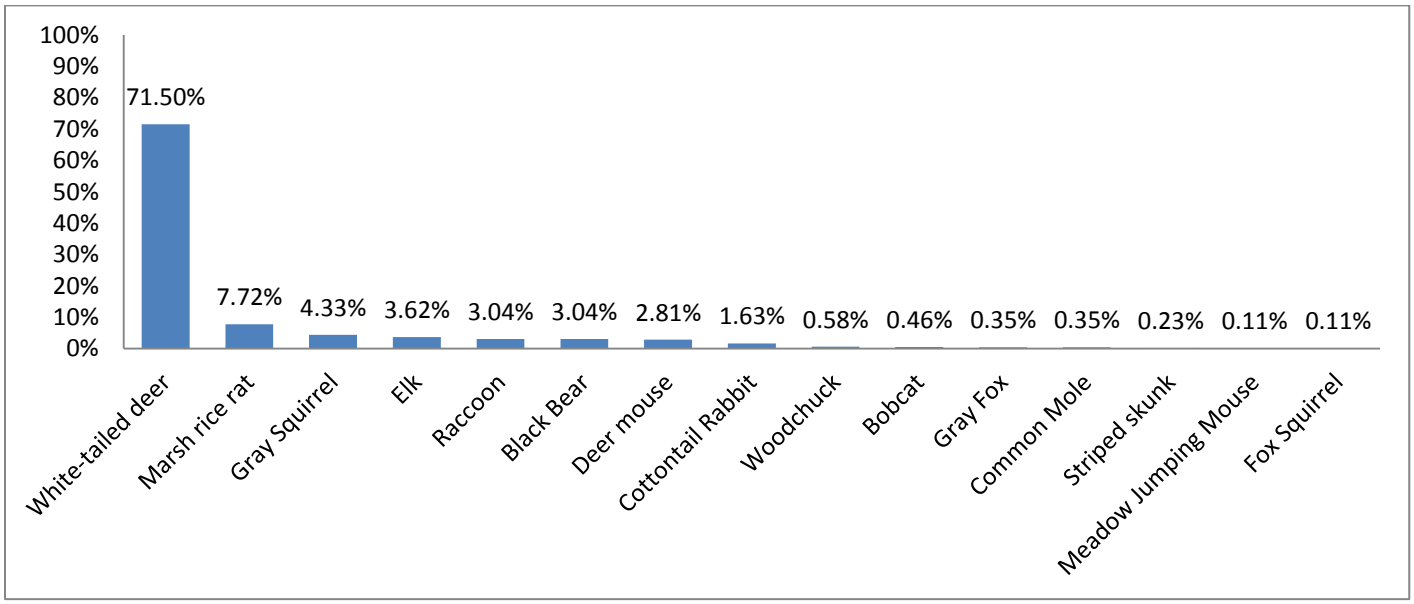

Figure 15: Fox Farm NISP percentage of mammal species identified (Henderson and Breitburg 1992).

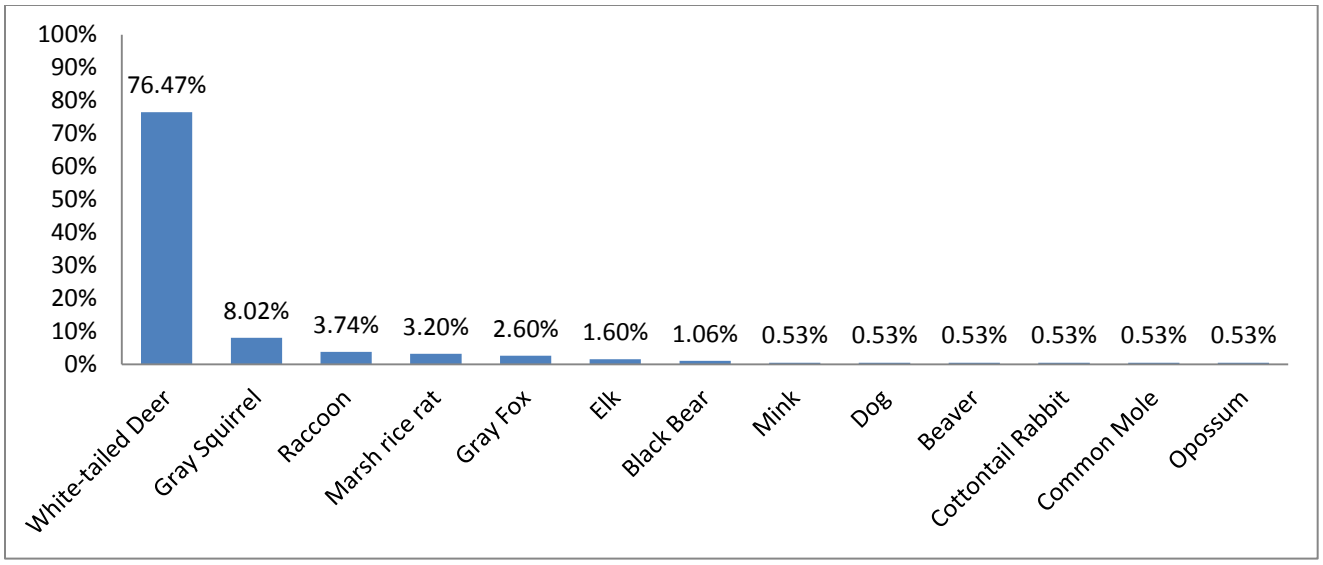

Figure 16: Snag Creek NISP percentage of mammal species identified (Henderson and Breitburg 1992).

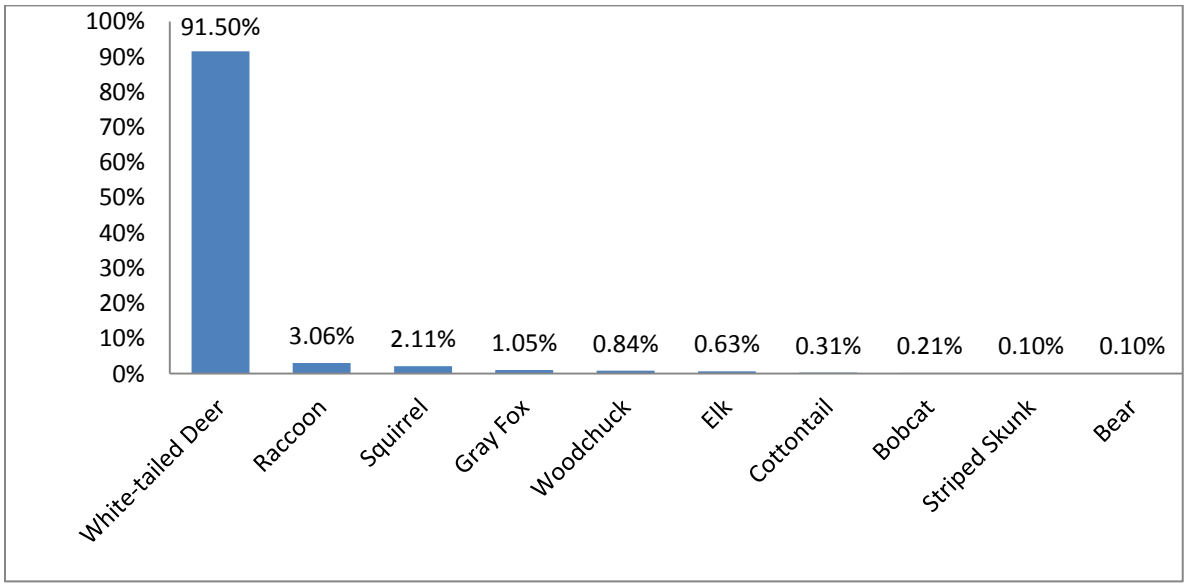

Figure 17: Philo II NISP percentage of mammal species identified (Barber 1974).

Faunal Usage in Eastern North American Ethnography

When animal usage in the Fort Ancient tradition is compared to other cultures in the surrounding area, a pervasive, overarching subsistence strategy becomes clear. The Fort Ancient people were known to have traded goods with several other tribes in the area. They traded directly with the peoples of the nearby Central Mississippi Valley, many Iroquoian groups, and

with groups in the south and southeast more indirectly (Drooker 1997:329). This proves that they had cultural contact with their surrounding area. In addition, there is abundant evidence that many groups throughout the northeast and southeast shared many of the same religious traditions. For instance, the green corn ceremony, a festival held when corn is first edible, was pervasive throughout the eastern woodlands and coincided with the occurrence of maize (Witthoft 1949:82). This leads to the conclusion that they likely shared many other cultural traits, particularly those related to subsistence (Witthoft 1949).

An examination of the most commonly used and important faunal resources in 41 different Native American groups throughout the northeast and southeast revealed many patterns (Table 3). Of these groups, 95% were noted to have used deer to some extent in their diet, and 37% of those noted that deer was one of their primary sources of meat. The second most commonly used animal was fish with 85% of the groups utilizing this resource, however only 2% of the groups noted that it was a primary resource. In fact, only in southern Florida, along the gulf coast, and in the nearby Lower Mississippi Valley was fishing most important, although it was also common elsewhere (Hudson 1976:258). Other common animals (with more than 35% of groups utilizing it) are bears, turkeys and raccoons (Figure 18). Bears were also the only other animal that was noted to be a primary source of meat by two or more groups. This clearly shows that throughout the region deer was the most important resource, despite fish often being readily available. Deer was followed in commonality by a common suite of small and large mammals, such as bears, raccoons, rabbits, beavers, and squirrels. These were then followed by turkeys and turtles. Fish were commonly used but were rarely a primary resource (Table 3). Many animals were noted to not be eaten by groups as well, usually because of a taboo against

Group Name/Animal Used:	Deer	Bear	Moose	Elk	Fox	Raccoon	Dog	Wolf	Muskrat	Rabbit	Woodchuck	Opossum	Beaver	Squirrel	Other Small Mammals	Fish	Frog	Snake	Turtle	Other birds	Turkey
Delaware	**	*	*			*		*					*		*	*				*	*
North Carolina Algonquians		*													*	**		*	*	*	
Hurons	**	*	*		*		**			*	*					**				*	*
Iroquois	*	*				*				*		*	*	*		*					*
Fox	**														*						
Potawatami	*	*		*		*		*	*					*	*	*			*	*	
Chippewa	**	*	*		*			*								*					
Ottawa	*	*											*		*	*				*	
Mohawk	**	**			*	*	*		*	*	*		*					*	*		*
Western Abenaki	*	*	**										**			**				*	
Southern New England and Long Island	**	*	*											*		*			*	*	
Mahican	*	*														*					
Nanticoke and Neighboring Tribes	*	*												*	*	**				*	*
Troyville-Coles Creek	*	*				*	*		*							**			*		
Oliver Complex	**														*	*				*	*
Shawnee	*	*				*								*		*					*
Sauk	*					*			*				*								
Illinois	*	*																			*
Kickapoo	**																				
Menominee	*	*														*					
Ojibwa	*	*								*						*				*	
Mistassini Cree		*	*							*			*		*	*				*	
Saint Johns Culture (East and Central Florida)	*									*						**			**		*
Calusa	*														*	**			*		
Timucua	*														*	**				*	
Yamasee	*	*				*										*					
Cusabo	*	*				*									*	*					*
Catawba	*	*				*				*		*		*		*				*	*
Cherokee	**	*		*						*	*	*	*	*		*	*		*	*	*
Creek	**	**				*			*			*	*	*	*	*		*	*	*	*
Seminole	*			*		*				*		*		*		*			*	*	*
Chickasaw	**	*														*			*		
Choctaw	**	**													*	*				*	
Central Mississippi Valley	**	*		*	*	*	*	*		*		*	*		*		*			*	*
Natchez	*	*														*					*
Caddo	**	*								*						*				*	*
Chitimacha	*	*													*	*			*	*	
Atakapan	**	*													*	*					
Apalachee	*	*								*		*		*		*			*	*	*
Omaha	*	*	*	*		*	*	*		*		*	*	*	*	*	*			*	*
Virginia Siouan	*													*		*			*		*

Key: *=utilized **= primary resource

Table 3: Commonly used animals among Native American tribes of the Northeast and Southeast (Fogelson and Sturtevant 2004; Sturtevant and Trigger 1978; Hudson 1976; Springer 1980)

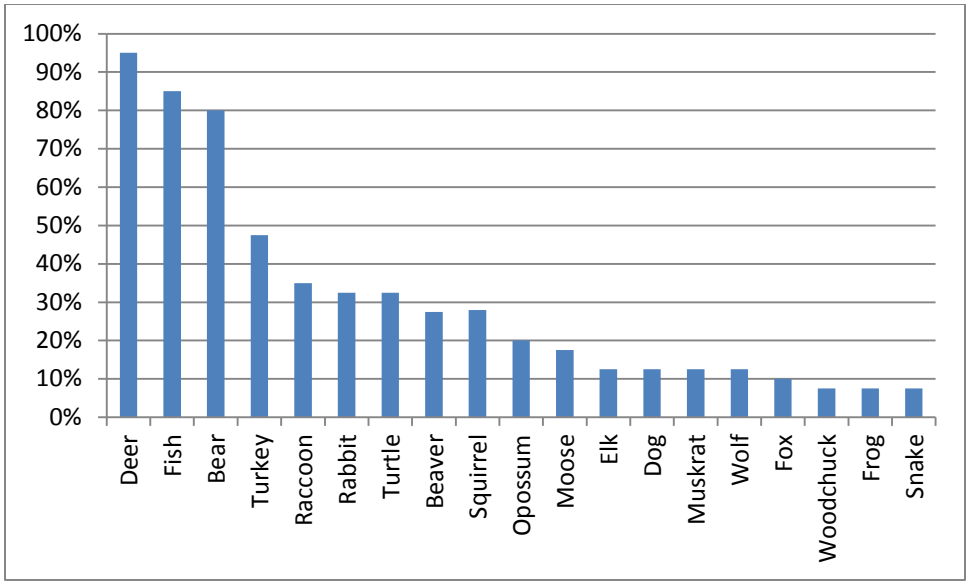

Figure 18: Percent of 41 North American Tribes that were known to utilize various animals (Fogelson and Sturtevant 2004; Sturtevant and Trigger 1978; Hudson 1976; Springer 1980).

that animal. For instance, the Cherokee abstained from wolves, bobcats, raccoons, otters, weasels, salamanders, and snakes; the coastal Algonquians avoided sturgeon; many groups in the southeast avoided wolves, foxes, and cougars; the Iroquois (including the Mohawks) avoided woodchucks, bats, porcupines, moles, turtles, skunks, and snakes; and the Mistassini Cree avoided ermine and some species of fish (Fogelson and Sturtevant 2004; Hudson 1976; Kuhn and Funk 2000; Sturtevant and Trigger 1978; Tanner 1979).

In general, the Great Lakes area was characterized by deer, beaver, fish, elk, turtles, and migratory waterfowl, with fishing being the most important resource only to the Hurons (Smith 2011:458). The Appalachian Highlands and Plateau used deer mostly, along with squirrel, raccoon, beaver, turkey, box turtle and fish. In particular, Eastern grey squirrels were important to northeastern groups only (Smith 2011:466-471). In the southeast, deer was focused on, and

ranged from 10% to 50% of all identified taxa in many assemblages, while turkey ranged from 1% to 9%, and fish from less than 1% to 25% of the assemblage (Lapham 2006).

Overall, almost all of these commonly used animals are found at Guard and Taylor as well. In addition, these trends (fish being utilized but not important, amphibians being hardly used at all, and deer being the most dominant faunal resource) are also present at the two study sites. This shows that Guard and Taylor were reflecting a pattern of subsistence that was widespread throughout eastern North America, and most closely resembled other tribes of the southeast where they relied first on agriculture, second on hunting, and third on fishing and gathering (Fogelson and Sturtevant 2004:259).

V. Conclusions

When one examines the faunal assemblages at Guard and Taylor within the context of their larger social and cultural environment, it is clear that although they did utilize animals that were readily available to them in their environments, the environment was not the only factor that likely shaped what they ate. In fact, it seems more likely that they were following a cultural pattern of subsistence that was pervasive throughout the Eastern United States and which was characterized by a focus on several key mammals, especially deer, while other often equally abundant resources such as fish were not as often utilized. This supports what many scholars have noted, that social environments are often more relevant for completely understanding subsistence strategies than are local environmental variables and their scheduling (Deagan 1996:25).

When it comes to examining why this subsistence tradition was so pervasive throughout the region, there are many possible explanations. The conception of animals and their place in the world is cultural in and of itself. Eastern Native American classification of animals begins with something akin to species divisions, and then many groups divide animals by season (summer/winter animals), and finally those animals were divided into groups which are ruled over by an animal master (Hudson 1976:128; Tanner 1979:151). Some groups, such as the Mistassini Cree, also distinguished domesticated versus wild animals and big game versus smaller animals. Animals were even grouped based on their usefulness or where they tend to live (Tanner 1979:152). Since animals themselves are viewed through such a cultural lens, there are many different reasons why some are hunted and some are not. Some scholars believe that food sources are chosen mainly out of convenience, or taste preferences, or both (Smith 2011:414). Then there are perspectives focused more specifically on the environment. For instance,

according to Cleland (1966:38), a culture will use plants and animals that are most abundant and easy to capture. Deer, the most commonly hunted animal in the region, were extremely abundant and often traveled in large herds. They were hunted so much that many have even referred to them as "semi-domesticated" (Hudson 1976:277). Lapham (2006) believes that, in general, the availability of a resource influences the intensity with which a particular habitat is utilized, which in turn partly determines the resulting distribution of species in a kind of loop that determines which species are hunted most often. On the other hand, Hudson (1976) contends that deer were focused on so much in this area because they have such a large reproductive capacity that having humans as intensive predators allowed them to reach a symbiosis with the environment. In addition, it has been suggested that turkey was hunted so frequently because it was as abundant as deer (Schorger 1966:52). Thus, some of these aspects could have influenced the pervasive strategy pursued by these groups.

However, some animals may be chosen or ignored for cultural reasons. For instance, one proposed reason is that the animals which were focused on were so used because their bones and bodies were useful in many ways other than as a food source. For instance, there are many ethnohistoric accounts of Native American peoples using deer hides and remains as part of their material culture in addition to eating the meat. The Choctaw and Seneca peoples record the use of deer mandibles as graters for processing maize. In addition, modified astralagi in late Mississippian contexts may have been used as gaming pieces, and tines of deer and elk antler were often made into arrow points (Sturtevant and Trigger 1978). In fact, deer and elk antlers were used in so many different ways by Fort Ancient peoples that the emphasis on this material is one of the distinguishing characteristics of the culture (Griffin 1996:199). Other common animals, like turkey, were also utilized in this way. For instance, many turkey metatarsals were

made into awls, and their feathers used for clothing and decoration (Schorger 1966:357). In addition, the canine teeth of various animals such as bear, wolf, elk and dog were perforated and used as pendants (Griffin 1966:43).

Aside from being chosen out of usefulness, foods can also be focused on in order to distinguish socioeconomic status or identity. Food can provide a means to emphasize or deemphasize one's differences with others, and a means of denoting ethnicity or religion (Scott 1996:357). By focusing on just a few species, as the Fort Ancient peoples did, they could have been distinguishing themselves from other groups in the area, such as the Mississippians, who focused more on fish (Smith 1974). Many individuals or clans often used animals as emblems to assert their local or clan identities (Hudson 1978:192). In addition, religious associations with certain animals can make them more valued or frequently used. Many northeastern and southeastern tribes had religions in which certain animals played a major role. For instance, shamanistic activity in many southeastern tribes was associated with medicine bags full of small animal or bird skulls. In addition, many stories and myths center around animals, such as deer, rabbits, and bears (Hudson 1976). The killing of bears in particular was given special religious and ceremonial treatment (Hallowell 1926). This could be why these animals were given special significance in the diet. Finally, food taboos, which are common in many cultures, can also play a major role in shaping what a group eats. As was noted in the results from the examination of Eastern North American ethnography, many of the Native American groups in the area avoided particular animals because of various food taboos.

Culture, and particularly social structure, also affects food choice as the hunting of different animals is inevitably linked to prestige and social status. Hunting large animals meant risking one's life and/or experiencing a supernatural encounter, which afforded much prestige

and status to hunters, who were usually men (Sturtevant and Trigger 1978). This is contrasted with fishing, an activity which just about anyone can do, thus it did not provide as much prestige. Usually, it was the women and children who were in charge of fishing (Fletcher and LaFlesche 1972:312). And, since in a farming society women were also in charge of the crops, this potentially means they had less time for fishing overall. In addition, foods like fish could be gathered in great amounts, so in many cultures it was not seen as much of an elite or valuable food as deer was (Smith 2011:415). In the same way, bears were also seen as more prestigious animals (Hallowell 1926), and there is even evidence that Iroquois men associated with bear maxilla headdresses used them as status markers (Sullivan and Coffin 1995:179). In addition, status has also been linked to wolf regalia (Cook 2012).

Thus, although there is no one explanation for why the occupants of Guard and Taylor, and many other tribes in the southeast and northeast, focused on the animals that they did, it is clear that a complete explanation involves a mix of both cultural and environmental factors. So, maybe it is not nature versus nurture after all, but a combination of the two that shapes the animal subsistence strategies of these early farmers (Branch 2005; Cleland 1966; Hallowell 1926; Mintz and Dubois 2002).

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